Madagascar:
Protecting nature to survive

Madagascar is the fourth-largest island and one of the poorest countries in the world. Population growth, poverty, direct dependencies on natural resources, lack of education and the effects of climate change threaten both people and the environment.

The majority of the Malagasy people depend directly on natural products (such as wood, fruits, tubers, or meat) for their livelihood resulting in severe overexploitation of the island's natural resources. In order to secure people's long-term survival, it is essential to use local ecosystems and their services sustainably.

The SuLaMa Project has developed alternative land-use methods in the region of the Mahafaly Plateau in south-west Madagascar. This is also one of Madagascar's most disadvantaged regions in terms of economy and climate. The human population is growing rapidly, and the people suffer from recurring droughts of one to several years and persistent poverty.

In a participatory approach, SuLaMa paid special attention to the needs, rites, and customs of the local people to integrate human interests with the conservation of the area's globally unique biodiversity. While biodiversity conservation remains a matter of concern, the participatory approach helped greatly to identify local ecosystem goods that could be sustainably integrated in the economic activities of the local human population.

A

Awareness and understanding of the importance of biodiversity conservation is promoted by integrating primary schools and the celebration biodiversity related festivals, such as the World Lemur Festival.

Community based monitoring approaches are evaluated across the region in collaboration with GOs and NGOs to harmonize approaches and to benefit from "lessons learnt".

Local staff has been trained for monitoring. They act as multiplier for training of students, staff of national parks as well as of communities.

National and international field school in biodiversity monitoring and ecosystem assessments have been implemented.

Promoting awareness for sustainability

Upon request of Madagascar National Park, the organization in charge of managing national parks, SuLaMa had been developed in close collaboration with national authorities (Organisation National pour l'Environnement) and several universities of Madagascar.

Research topics were always addressed by tandems of one Malagasy and one German student promoting mutual trust and understanding. Workshops held at all levels, ranging from village meetings to the regional government and international stakeholders gave stakeholders a voice at all levels. The permanent presence of project representatives, living at the sites and acting as communicators (in both ways), were key for the success of the project. Paraecologists from the local villages were trained for biodiversity monitoring and conservation. They were not only involved in research, training of students and staff of GOs for biodiversity monitoring, but also participated in the implementation of projects for the sustainable utilization of ecosystem goods.

Field schools for biodiversity monitoring provided for stakeholders at different levels

B

Strategies for land utilization and management are being explored in role-playing games.

Agriculture is improved by better seed stocks, introduction of improved methods and the installation of home gardens.

Plant species that combine economic and biodiversity value have been identified.

Biodiversity values (wild yams, new fodder plants) are being identified and added to the portfolio of goods generating income.

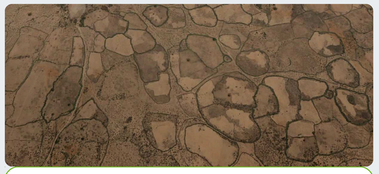
Reducing pressure on biodiversity

People rely on goods provided by the local biodiversity year-round. Especially during the lean times of the year, prior to the harvest or in years without harvest, the forest in the protected area provides essential goods for the survival of the people and their livestock. Towards the end of the dry season, when pastures have become short in supply, cattle spends substantial times within the national park for feeding but also as protection against cattle thieves. Feeding of cattle virtually eliminates regeneration of the forest. The endemic Euphorbia stenoclada can be planted as fallback food for cattle during the dry season. New techniques for the propagation of the species have been established in tree nurseries and disseminated in workshops across the region.
New plantations outside the forest will reduce the pressure on the conservation area.

Endemic yams also serves as fallback food during the lean season. Traditional harvests were destructive. Simple modification of the technique allows regeneration of the plant in situ. The species can also be planted at no cost in and around villages. Together with new home gardens, these activities provide buffers against the unpredictable climatic conditions and generate income. Especially the marketing of vegetables from the home gardens seems economically interesting, but stable market chains need to be established.

Women producing vegetable for marketing

C

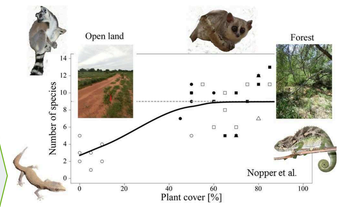


Endemic biodiversity components were assessed in different systems of land utilization (agriculture, pasture), landscape structures were identified that maximize biodiversity values within an agricultural landscape without compromising agricultural production and forest management (including protection of community forests) is being transfered to local communities.

Integrating biodiversity conservation in agricultural landscapes

Probably due to the unpredictable climate with substantial natural disturbances (droughts, cyclones with floods), the majority of the regional endemic species pool seems to be rather insensitive towards disturbances. This facilitates the integration of structures that can maintain a substantial portion of the regional diversity in the agricultural landscape.

Some lemurs (primates of Madagascar), reptile and bird communities maintain a rich species composition even in degraded forests. Below a threshold of about 30% of the forest cover recorded from the protected area, the number of animal species starts to drop. Thus, a large portion of the regional endemism could be maintained in areas of multiple use. This includes hedges to protect fields against cattle. Planted hedges could consist of trees and shrubs of use for humans but could also provide corridors to link suitable habitats for the endemic biota.



Within an agricultural landscape forest cover of about 30% still maintains a large portion of the endemic animal species.

D

Water quality has been assessed throughout the region and concepts have been developed to improve access to clean water.

Concepts are developed for better use of limited water resources.

The potential of the region to accumulate carbon stocks is very limited due to very slow growth of trees. Yet fodder plantations (see B) can contribute to carbon sequestration .

Water resources and carbon stocks

The limited water supply is the biggest problem of the area for the human population. Chemical and microbiotic analyses of a variety of wells and other water sources showed that water quality does not reach recommended international standards for drinking water. In particular, all but one water source of the region were contaminated with bacteria representing a serious health hazard. Poor sanitary conditions are the principal causes of the water contamination that could be reduced substantially by simple behavioural changes of the local human population. Yet, this is in contrast to local believes and traditions, making behavioural changes unlikely.

Some water bodies would allow limited irrigation agriculture but only to a clearly defined water level of the wells. Above this threshold surplus water would be used that otherwise would be lost to the ground water. However, below this threshold, closed water bodies would be exploited that are just sufficient to provide enough water for the current human and livestock populations during the dry season.

Carbon stocks are low and tree growth is extremely slow. While the local forests cannot play a prominent role for carbon trades, they are nevertheless of utmost importance to maintain the ESS/ESFs for the region. This must be integrated in any evaluation of the values of local forests.

Tree growth measured with dendrometers

E

The transfer of forest management responsibilities form the government to local communities is an ongoing process that is evaluated periodically.

The status of biodiversity and threats for their persistence are monitored by community based monitoring programs. This includes community specific priorities and needs.

Students of the several Malagasy universities participate in annual field schools to raise awareness for the situation in other parts of their country and to contribute to capacity building.

Enhance implementation

Madagascar's forest management is in the process of decentralization, giving more responsibilities to local communities for managing their community forests. This process has been reinforced by role playing games where people could actually see the results of individual or group decisions for the agricultiural as well as for the protected ecosystems.

Relevant components of the community forests are registered by community monitoring programs. These programs include, but are not specifically targeted towards biodiversity monitoring, as this is not a priority for the communities. Thus, community monitoring programs differ from the monitoring schemes of the wardens of Madagascar National Park (MNP) and from the approaches in academic research. Paraecologists trained within SuLaMa act as intermediates to train people involved in community monitoring activities, collaborate with wardens from MNP and interact with researchers and students. These interactions raise awareness of the local interests and foster the development of appropriate methods to address and combine the needs of all stakeholders concerned.

Data entry for monitoring

AICHI BIODIVERSITY TARGETS
STRATEGIC GOALS

A Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.

Target 4: By 2030, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

B Reduce the direct pressures on biodiversity and promote sustainable use

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

C To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

D Enhance the benefits to all from biodiversity and ecosystem services

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

E Enhance implementation through participatory planning, knowledge management and capacity building

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011–2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

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